BEFORE THE
PUBLIC SERVICE COMMISSION OF
SOUTH CAROLINA

DOCKET NO. 2020-264-E
DOCKET NO. 2020-265-E

In the Matter of:	)	
	)	
Duke Energy Carolinas, LLC's Establishment of Solar Choice Metering Tariffs Pursuant to S.C. Code Ann. Section 58-40-20	)	**REBUTTAL TESTIMONY OF LON HUBER FOR DUKE ENERGY CAROLINAS, LLC AND DUKE ENERGY PROGRESS, LLC**
	)	
Duke Energy Progress, LLC's Establishment of Solar Choice Metering Tariffs Pursuant to S.C. Code Ann. Section 58-40-20	)	

I. INTRODUCTION AND SUMMARY

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Lon Huber, and my business address is 550 South Church Street, Charlotte, North Carolina.

Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?

A. I am employed by Duke Energy Corporation ("Duke Energy"). My role is Vice President, Rate Design and Strategic Solutions. In this capacity, I am responsible for rate design and pricing for all of Duke Energy's affiliated utility operating companies, including Duke Energy Carolinas, LLC ("DEC") and Duke Energy Progress, LLC ("DEP") (DEC and DEP are herein referred to collectively as the "Companies").

Q. HAVE YOU PREVIOUSLY FILED TESTIMONY IN THIS PROCEEDING?

A. Yes, on November 2, 2020, I caused to be pre-filed with the Public Service Commission of South Carolina (the "Commission") my direct testimony and one exhibit on behalf of the Companies. On February 17, 2021, I also filed Supplemental Direct Testimony in support of the Stipulation among DEC, DEP, and Alder Energy Systems, LLC, which was filed in this proceeding on February 8, 2021.

Q. WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY?

A. The purpose of my rebuttal testimony is to respond to various incorrect allegations contained in the testimony provided by Brian Horii on behalf of the South Carolina Office of Regulatory Staff (the "ORS").

Q. ARE YOU INCLUDING ANY EXHIBITS IN SUPPORT OF YOUR TESTIMONY?

A. Yes, **Huber Rebuttal Exhibit 1** and **Huber Rebuttal Exhibit 2** contain articles which discuss the compromise reached by the Companies and numerous intervenors in this proceeding.

Q. PLEASE INTRODUCE THE OTHER WITNESSES PROVIDING REBUTTAL TESTIMONY ON BEHALF OF THE COMPANIES IN THIS PROCEEDING.

A. The Companies have engaged several subject matter experts to provide rebuttal testimony in this proceeding.

- Ahmad Faruqui. Witness Faruqui is a third-party consultant engaged by the Companies to provide rebuttal testimony on issues related to the stipulations in this proceeding, rate design of the tariffs, and the cost of service methodology used by the Companies to compute cost-shift. Mr. Faruqui is an internationally recognized expert and draws upon his vast experience to provide the Commission with a broad perspective on the innovative rate designs utilized by the Companies.
- Bradley Harris. Witness Harris is a Rates and Regulatory Strategy Manager for Duke Energy and played a critical role in the development of the Solar Choice Tariffs. Witness Harris provides rebuttal testimony on issues related to the Companies' Embedded Cost of Service Studies that were utilized to develop the Solar Choice Tariffs. Specifically, Witness Harris details the Commission-approved methodologies and inputs utilized by the

Companies, and why Witness Horii's suggested move away from those Commission-approved items would have consequences much broader than this net energy metering ("NEM")-specific docket.

- Janice Hager. Witness Hager is a third-party consultant engaged by the Companies to provide rebuttal testimony on issues related to the Companies' embedded cost of service study and cost allocators utilized in the development of the Solar Choice Tariffs. Witness Hager has comprehensive knowledge of these topics given that she spent 34 years with Duke Energy.
- Leigh Ford. Witness Ford is a third-party consultant engaged by the Companies to provide rebuttal testimony on issues related to Witness Horii's allegation that the mere existence of a Memorandum of Understanding ("MOU") in this proceeding somehow restricts the Companies from being "forthright" or providing "useful information." Witness Ford's rebuttal testimony details a robust, stakeholder process that began over a year ago, which resulted in comprehensive stipulations in this proceeding. Witness Ford also outlines how the settlement process is particularly appropriate in this context given that the existing NEM programs arose from a negotiated agreement as well.

Q. PLEASE PROVIDE A SUMMARY OF THE COMPANIES' REBUTTAL TESTIMONY SUBMITTED IN THIS PROCEEDING.

A. Taken together, the Companies' rebuttal testimony in this proceeding evidences certain key themes:

1. Witness Horii's allegation that the Companies move away from utilizing the 1 Coincident Summer Peak (the "Summer CP") is not appropriate in this proceeding.

The Summer CP represents the only cost allocator that serves as the basis for all of the Companies' South Carolina, Commission-approved retail electric rates. This is the very reason why the Companies utilized the Summer CP to develop the rates within the NEM tariffs submitted in this proceeding (the "Solar Choice Tariffs"). Using a different allocator for a subset of customers would adversely impact the Companies' revenue requirements. In fact, Witness Faruqui—who has a vast wealth of experience in this area—notes that he has never seen a different allocator utilized for NEM customers. Furthermore, any such change should be made in the appropriate forum—a base rate case—instead of dockets established exclusively for the purposes of approving NEM tariffs.

2. Witness Horii's bold assertion that the Companies have not been forthright or provided useful information is baseless and prejudicial.

Witness Horii attacks the MOU entered into by the Companies and various intervenors in this proceeding because it could allegedly restrict the Companies from being open and transparent in this proceeding. However, the existing NEM programs arose from a similar agreement to which the ORS was a party. It is not only disingenuous, but also bad policy to attack a cooperative solution in any proceeding due to the mere existence of an MOU, but it is particularly egregious in these dockets considering the collaborative agreement that gave rise to the existing NEM programs. The Companies first engaged the ORS on these topics over a year ago and the

ORS did not and cannot point to any evidence to support these concerns. The ORS simply advances this claim as a way to undermine the efforts of the parties in this proceeding to resolve disputes over certain strongly-held beliefs. The Companies engaged in a robust stakeholder process, multiple calls and meetings with the ORS, and a discovery process in which the Companies made sure to provide as much responsive information as possible to the requests submitted by the ORS. As such, Witness Horii's claim is not only surprising and unexpected, but also not reflective of the record.

3. Contrary to the baseless claims made by Witness Horii, the MOU represents an innovative and ground-breaking path forward for NEM.

The MOU and corresponding stipulation should be applauded rather than denigrated by the ORS. As Witness Faruqui describes in greater detail, the compromise reached in this proceeding represents some of the "most innovative rates in the utility industry" and resolves "a long-standing dispute between the utility industry and the solar industry." In doing so, the agreement provides a viable path forward for NEM in South Carolina while reducing cost-shift to the "greatest extent practicable" in accordance with S.C. Act No. 62 of 2019 ("Act 62").

Q. PLEASE SUMMARIZE THE COMPANIES' RESPONSE TO WITNESS HORII'S OVERARCHING CRITICISMS OF THE COMPANIES' ANALYSIS.

A. Witness Horii uses misleading terms to describe the Commission-vetted methodology the Companies use to analyze embedded costs. In his testimony, words like "False" and needing to be "corrected" appear. Witness Horii has disingenuously represented the Companies' position as "incorrect" when he merely disagrees with the methodology. This is all the more misleading when one considers that Witness Horii is the one using a highly speculative approach that has not been vetted by the Commission and that breaks regulatory norms by changing the cost basis of only one group of customers.

Q. PLEASE SUMMARIZE THE COMPANIES' RESPONSE TO WITNESS HORII'S RECOMMENDATIONS REGARDING THE EMBEDDED COST SHIFT STUDY.

A. Witness Horii has used highly speculative approaches that have not been vetted by the Commission and breaks regulatory norms. This is especially problematic with Witness Horii's recommendation to change the allocation methodology for embedded production and transmission costs only for customer-generators. As Witnesses Hager, Harris, and Faruqui note, this would fundamentally challenge the logic underpinning all of the Companies' retail rates in South Carolina. The suggestion to reconsider embedded cost allocators for all customers is reasonable only in the context of a base rate case. In this context, to use or suggest alternative, non-Commission approved allocators is not a matter of subjective disagreement –

it is methodologically incorrect. As Witness Hager notes, the allocators Witness Horii does suggest have not been fully vetted in the South Carolina context and are relatively rare nationwide.

Q. PLEASE SUMMARIZE THE COMPANIES' RESPONSE TO WITNESS HORII'S RECOMMENDATIONS REGARDING RATE DESIGN.

A. The implications of Witness Horii's rate design recommendations are unknown and extreme. He seeks to send price signals that reach price levels seldom reached in the Companies' jurisdictions by allocating all generation costs into only a small number of hours. By doing this, Witness Horii sends price signals far detached from the long-run marginal cost. Furthermore, given the correct embedded cost allocators and marginal cost studies, these suggested rate designs could lead to significant cost shift. Customers may not want to be exposed to those prices or if a customer is wealthy enough, they could respond to those price signals by employing additional technologies and upgrades, perhaps causing the very cost shift Witness Horii attempts to reduce.

Q. PLEASE SUMMARIZE THE COMPANIES' RESPONSE TO WITNESS HORII'S SUGGESTION THAT THE COMMISSION MAY DISREGARD CERTAIN PORTIONS OF ACT 62 RELATED TO SOLAR CHOICE TARIFFS.

A. Witness Horii acknowledges on page 6 of his direct testimony that cost shift minimization and support of the DER market are challenging goals to try to balance, but then he neglects to even try to balance them. To Witness Horii's credit, he does come forward later on page 32 of his direct testimony to explain that this

key balancing act is not the primary focus of ORS in this proceeding. However, Witness Horii then presents the Commission with the option to the adopt his admittedly one-sided position that focuses on only a single requirement in Act 62. This is false choice for two reasons. First, the General Assembly's direction to the Commission through Act 62 was to balance the list of considerations included in the legislation, there is no opening to pick and choose what aspects of the legislation to emphasize or largely ignore. Second, Witness Horii has presented an extreme, non-approved, and non-standard methodology to reach his conclusions. This creates a false choice for the Commission that does not need to exist because the stipulation strikes the balance Act 62 requires. In fact, a central tenant of the Stipulation was to simplify an amazingly complex topic by using currently approved Commission policy in the hope of avoiding a protracted and contentious proceeding as well as "build upon the successful deployment of solar generating capacity" in accordance with Act 62. In doing so, the settling parties have created what will be the nation's most cutting-edge rooftop solar policy.

II. REBUTTAL TO WITNESS HORII

Q. HOW DO YOU RESPOND TO WITNESS HORII'S ALLEGATION THAT THE COMPANIES' USE OF THE SUMMER CP IN THEIR FORWARD-LOOKING EVALUATION OF THE SOLAR CHOICE TARIFFS "CREATES OUTDATED AND UNRELIABLE RESULTS FOR DETERMINING COST SHIFT"?

A. This allegation is in direct contradiction of the fundamentals of ratemaking in South Carolina. As the Companies' Witness Harris describes in greater detail, the Summer

CP forms the basis for all of DEP and DEC's rates in South Carolina because it is the only Commission vetted allocator at this time. As echoed by Witness Hager, the Summer CP is the basis for the base rates approved by the Commission in the Companies' last rate cases—proceedings initiated for the express purpose of reviewing the Companies' rates and the allocators used to calculate the same. This means that Witness Horii is essentially claiming either that the Commission erred in allowing the continued use by the Companies of the Summer CP—an allegation that would have much broader consequences than simply affecting NEM rates—or that the Companies can simply ignore the outcome of these rate cases which involved 13 intervenors, 5 public hearings with hundreds of customers present and 10 days of evidentiary hearings for the two cases combined. For example, if the Commission were to accept Witness Horii's assertion, then the Companies and the Commission would necessarily have to initiate a review of all electric rates because DEC and DEP must apply the same allocator uniformly across customer rates—we cannot simply apply different allocators to different customer classes.

Not only is Witness Horii's claim something that the Companies cannot do within the scope of this proceeding, it is simply incorrect. As explained in further detail by Witness Hager, both DEC and DEP have historically been summer peaking. The majority of the costs reflected in the Companies' embedded (historical) cost of service study utilized in this proceeding reflect production and transmission costs that were intended to serve a summer peak. A change away from the Summer CP would violate the cost-causation principles of ratemaking given that allocating costs based on a winter peak would not reflect the Companies'

embedded costs. Although the request to move away from the Summer CP is simply inappropriate, the request is even more odd given that this is not a base ratemaking docket, and if Witness Horii's request is granted, it would mean that a subset of customers would take service under rates that use an entirely different allocator than the Companies' larger, overall customer base. If Witness Horii truly believes that the Summer CP is inappropriate, I believe that he should have simply raised his concern in this proceeding and recommended the Commission examine this issue in the Companies' next base ratemaking proceeding.

Q. BEGINNING ON PAGE 23, LINE 16, WITNESS HORII ARGUES THAT CUSTOMER-GENERATORS UNDER THE YET-TO-BE-PROPOSED BYOT PROGRAM WOULD OBTAIN MORE IN INCENTIVES THAN A NON-SOLAR CUSTOMER PARTICIPATING IN THE SAME. IS THIS CORRECT?

A. No. Under the terms of the Stipulation, the financial incentive paid to a participating customer in the Companies' approved Winter-Focused BYOT Program would be identical for both a customer participating in the yet-to-be-proposed solar energy efficiency program and a customer not participating in yet-to-be-proposed solar energy efficiency program. The program design and incentives of the Winter-Focused BYOT Program will be unchanged by the yet-to-be-proposed solar energy efficiency program. Witness Horii seems to be confusing the fact that a customer desiring to participate in the yet-to-be-proposed solar energy efficiency program will be required to sign-up and maintain participation in the Winter-Focused BYOT Program.

Q. WITNESS HORII WARNS THIS COMMISSION ON PAGE 26, LINE 16, THAT THE MOU ENTERED INTO BY THE COMPANIES COULD PREVENT THE COMPANIES FROM SHARING "USEFUL INFORMATION IN THIS PROCEEDING." ARE YOU AWARE OF ANY VALID REASON FOR WITNESS HORII'S CONCERN?

A. No, I am not—in fact, I strongly disagree and view Witness Horii's claim as unwarranted and completely baseless. The Companies strive to be as open and transparent as possible, regardless of the existence of an MOU or Stipulation. This is a particularly troubling allegation given that both DEC and DEP have engaged with the ORS on NEM-related topics via multiple avenues not only in this proceeding, but as far back as the Generic NEM Docket established by this Commission in Docket No. 2019-182-E. Additionally, as the Companies' Witness Ford outlines in greater detail, the existing NEM programs arose from a negotiated agreement to which the ORS was a party. In fact, that agreement contains language very similar to the language in the MOU that Witness Horii implies somehow restricts the Companies from being truthful in this proceeding. To be clear, his claim is simply not supported by evidence in the record and when evaluated in the context of the prior NEM settlement and the stakeholder outreach—in particular, the outreach to the ORS and Witness Horii in this proceeding—I believe it to be disingenuous.

Q. ALTHOUGH WITNESS HORII SEEKS TO DISCREDIT THE STIPULATION, DO OTHERS VIEW THE SAME STIPULATION AS A MODEL OF INNOVATION AND COOPERATION?

A. Yes, absolutely. Witness Faruqui draws upon his broad experience to describe the MOU and corresponding Stipulation filed in this proceeding on November 2, 2020, as breaking "a log jam that has stymied utilities and the solar industry for several years." In this respect, the MOU should be applauded rather than serving as the basis for unfounded allegations by Witness Horii. Other industry experts have also viewed the merits of the Stipulation, as evidenced by numerous articles praising the innovative solution proposed by the Companies and the Settling Parties. **Huber Rebuttal Exhibit 1** attached to my testimony contains a sampling of those articles wherein Utility Dive characterizes the Stipulation as "landmark" and **Huber Rebuttal Exhibit 2** contains an article in which Greentech Media characterized the agreement as "rallying a broad coalition of stakeholders." Clearly, the Companies' engagement of multiple stakeholders representing various interests evidences a fundamental desire to collaboratively build the next generation of NEM in South Carolina via stakeholder engagement and an open exchange of information. Keep in mind, the General Assembly made clear that a primary component of its intent in passing Act 62 was to "build upon the successful deployment of solar generating capacity through Act 236 of 2014 to continue enabling market-driven, private investment in distributed energy resources across the State by reducing regulatory and administrative burdens to customer installation and utilization of onsite

distributed energy resources."[1] This process necessarily accounted for all the various policy goals within Act 62—something that the ORS clearly did not do with its singular focus on completely eliminating cost-shift. The Stipulation builds upon the successful deployment of solar generating capacity, avoids disruption to the growing market for customer-scale distributed energy resources, while fairly allocating costs and benefits to eliminate cost shift to the greatest extent practicable. As stated above, this successful deployment of NEM under Act 236 was accomplished through a comprehensive agreement just like the MOU and corresponding Stipulation submitted by the Companies. The practice of entering into stipulations with adverse parties to create solutions—particularly innovative, industry-leading solutions as in this case—should continue to be encouraged by the Commission.

Q. IS IT YOUR TESTIMONY THAT THE STIPULATIONS SUBMITTED BY THE COMPANIES AND THE INTERVENORS IN THIS PROCEEDING ARE ACTUALLY IN THE BEST INTEREST OF ALL RATEPAYERS, CONTRARY TO WHAT WITNESS HORII IMPLIES?

A. Absolutely, and this is echoed by Witness Faruqui in describing the MOU. He notes that, "The agreement proposed by the Companies in the Stipulation virtually eliminates the cost shift without disrupting the growing market for customer-scale distributed energy resources." Clearly, these Stipulations balance the interests of all customers and represent months'-long efforts to solicit feedback and tireless efforts

[1] Section 58-40-20 (A)(1)

by parties with strong beliefs in their respective differing views to find a mutually agreeable path forward for NEM in South Carolina. The Stipulations arose from an open and transparent exchange of information between the Companies and the Stipulating Parties—which included a discovery process and various compromise positions by all parties—with the primary goal of providing the Commission with Solar Choice Tariffs for residential and non-residential customers that represent the core NEM-related principles of Act 62. These Stipulations were also the result of robust and, at times, spirited disagreement and debate. But in the end, the Companies and the Settling Parties were able to achieve a solution for this Commission's consideration that fulfills all requirements of Act 62 and provides access to customer-generators that choose to enroll in NEM programs, while fairly allocating costs and benefits to ensure that cost-shift is eliminated to the "greatest extent practicable."

Q. DO YOU BELIEVE WITNESS HORII'S CONCERNS WITH THE COST DURATION METHOD USED BY THE COMPANIES AS EXPRESSED BEGINNING ON PAGE 33, LINE 14 OF HIS TESTIMONY ARE VALID?

A. Many of his concerns are misplaced. Witness Horii argues that the consideration of generation capacity costs in the cost duration model should take into account the output of non-dispatchable renewable generation (i.e. the Companies should have used a "net load" rather than a "gross load"). Witness Horii also claims the cost duration model inappropriately allocates capacity costs to all hours of the year even though a relatively small subset of hours drives the need for capacity expansion. He proposes allocating generation costs between the time of use ("TOU") periods

according to Loss of Load Expectation ("LOLE"). Witness Horii's argument essentially boils down to this—the Cost Duration Method provides too large of a bill reduction for generation capacity because it incorrectly allocates capacity costs to every hour of the year. However, as explained by Witness Harris in his direct testimony, the Cost Duration Method was specifically designed to identify appropriate TOU pricing by forecasting hourly system costs coincident with the TOU periods. In doing so, the Cost Duration Method links system costs to the time periods during which those costs are incurred, and it accounts for these costs over the three major utility functions—transmission, distribution, and generation. This provides the Companies with a comprehensive picture of time-specific system utilization, which served as the foundation for the TOU rates in the Solar Choice Tariffs. Contrary to Witness Horii's assertion, this method does not inappropriately allocate capacity costs.

Q. PLEASE RESPOND TO WITNESS HORII'S ALLEGATION THAT THE COST DURATION METHOD SHOULD ALSO ALLOCATE GENERATION CAPACITY COSTS ON NON-DISPATCHABLE GENERATION RATHER THAN SOLELY UPON CUSTOMER DEMAND.

A. In theory, I agree with Witness Horii on this matter, and in other proceedings I have designed rates using net peak to allocate generation capacity costs to different TOU periods. However, I did not do this for two reasons in this proceeding: 1) the Companies' marginal and embedded cost-shift analyses showed that the proposed rate designs eliminated the cost shift to the greatest practicable using gross load. Using net load would have reduced the cost shift beyond what is practicable; and

2) there is a long-standing rate design principle of gradualism and avoiding large changes in customer bills. The Solar Choice Tariffs already increase customer bills and the Companies did not want the impact of the new designs to be too extreme.

Q. HOW WOULD THE TOU RATES BE MODIFIED IF WITNESS HORII'S SUGGESTION WAS IMPLEMENTED?

A. Tables 1 and 2 show the rates when calculated using the cost duration method, through LOLE, and through Witness Horii's calculations. If LOLE was used the critical peak pricing ("CPP") rates would also need to be reconsidered given that the peak TOU rate for both utilities would exceed the proposed CPP rate. To adjust for this, the LOLE rates below assume Witness Horii's suggested CPP rates of 44.325 cents/kWh in DEC and 35.210 cents/kWh in DEP. The methodology Witness Horii suggests would result in very high peak and CPP rates that are far from reflecting the reality of long run marginal costs and I would imagine our South Carolina customers would have a difficult time accepting such extreme prices.

Table 1

	DEC Rates (c/kWh)				
	Generation Only		All Costs		
	Cost Duration	Embedded Cost LOLE Allocation	Cost Duration	Embedded Cost LOLE Allocation	Horii "Zero Cost Shift" Rates
Peak	8.0	19.9	15.2	27.5	26.9
Off-Peak	4.1	1.7	8.8	6.6	15.5
Super Off-Peak	2.4		6.0	3.8	10.7

	DEP Rates (c/kWh)				
	Generation Only		All Costs		
	Cost Duration	Embedded Cost LOLE Allocation	Cost Duration	Embedded Cost LOLE Allocation	Horii "Zero Cost Shift" Rates
Peak	7.2	24.5	15.8	32.9	22.3
Off-Peak	3.7	0.1	9.5	5.9	13.4
Super Off-Peak	2.2		7.0	4.8	9.9

Q. DO YOU AGREE WITH WITNESS HORII'S ASSERTION THAT USING LOLE IS THE CORRECT METHOD FOR ALLOCATING GENERATION CAPACITY COSTS AND THAT THE COMPANIES' AVOIDED COST DOCKETS SET THIS PRECEDENT?

A. No. There are several reasonable ways of allocating costs to different TOU periods. However, the Companies' Avoided Cost dockets do not set this precedent. The purpose of the Avoided Cost proceedings is to determine the prices the Companies pay for purchased power. This is separate from setting retail electricity prices. There is no precedent for using LOLE for allocating embedded generation or transmission capacity costs in South Carolina—and any decision to defy this precedent should be made in the appropriate forum rather than dockets specifically created to examine only proposed NEM programs rather than ratemaking practices

underlying all of the Companies' retail rates in South Carolina. While the Companies did consider LOLE in their rate design analyses when determining TOU periods, this use is distinct from allocating embedded costs.

Q. PLEASE GIVE A HIGH-LEVEL EXPLANATION OF HOW THE COST DURATION MODEL ALLOCATES COSTS BETWEEN TOU PERIODS.

A. The model uses forecast load for each hour of the year. The hours are then ranked from highest load (the peak) to lowest load. Costs are allocated based on this rank and the step-up in incremental load. For example, the lowest demand hour is allocated capacity costs to serve this hour. The second lowest demand hour is allocated capacity costs to serve the lowest hour plus the incremental load to reach the demand of the second lowest demand. This goes so on and so forth until the highest demand/peak hour is allocated a share of the capacity costs to serve all hours/load. This process results in an allocation (percent) of capacity costs for each hour of the year. The TOU allocations are determined by summing up the allocated capacity costs for the hours in each TOU period. In other words, the cost duration model recognizes the capacity needed to serve each forecast hour and allocates an appropriate percentage of capacity costs accordingly.

Q. WHY DID THE COMPANIES NOT TRY TO QUANTIFY THE IMPACTS FROM CUSTOMER RESPONSE TO PRICES THAT WITNESS HORII CITES ON PAGE 20, LINE 10, OF HIS TESTIMONY?

A. The Companies wanted to provide a conservative estimate of benefits while adhering as closely as possible to previously approved mechanisms and

methodologies. I agree that customer behavior response to prices can lower peaks associated with allocator hours.

Q. IF THESE IMPACTS ARE CALCULATED SHOULD THEY BE INCLUDED IN THE CROSS-SUBSIDIZATION ANALYSES?

A. Yes. Witness Horii claims that these impacts should be ignored due to potential demand-side-management ("DSM") or energy efficiency ("EE") incentives. The consideration of the Solar Choice Tariffs is separate from the consideration of any DSM/EE incentives, which have their own cost effectiveness tests and regulatory treatment. Any identified benefits of the tariffs should be included in evaluating the Solar Choice Tariffs. For example, preliminary findings from DEC's pilot CPP design in North Carolina found a winter peak load reduction of 11.7% to 17% during a CPP event occurring on a winter morning.

III. CONCLUSION

Q. DOES THIS CONCLUDE YOUR PRE-FILED REBUTTAL TESTIMONY?

A. Yes, it does.

UTILITY DIVE

DEEP DIVE

Duke-solar industry breakthrough settlement aims to end rooftop solar cost shift debates

Successor tariff deal reshapes solar with dynamic rates, demand response requirements

By Herman K. Trabish

Published Sept. 16, 2020

A landmark settlement between Duke Energy and distributed energy resources (DER) advocates in North and South Carolina could remake the rooftop solar sector and be a model for ending regulatory disputes across the country.

The proposal, released Sept. 16, could calm contention between utilities and solar advocates over the perceived "cost shift" some utilities and policymakers see as a subsidy for rooftop solar paid by non-solar-owning customers. The settlement would, if approved by Duke's North and South Carolina regulators, pair rooftop solar with smart DER devices and time-varying rate designs to add to the utility's demand response capability and give customers an incentive to help address the utility's peak demand challenges.

"This is a totally new framework that treats self-consumed solar paired with demand response as energy efficiency and includes rate design innovations in dynamic pricing," said Duke Energy Vice President for Rate Design and Strategic Solutions Lon Huber. "We eliminate the cost shift, but retain a vibrant solar market,

which could be a paradigm-changing win in the national net metering debate."

Legislative and regulatory conflicts continue to increase nationally over replacing the retail rate net energy metering (NEM) tariff typically paid to solar owners for electricity exported to utility systems, said North Carolina Clean Energy Technology Center (NCCETC) Senior Policy Program Director Autumn Proudlove. "Some states have delayed action, but the approved changes have reduced compensation."

Successor tariff debates ultimately slow rooftop solar growth, according to Proudlove. But Duke and other utilities who see how customer-owned DER can cost-effectively help reduce peak demand and meet policy goals are working with stakeholders across the country on ways to take advantage of those DER investments without imposing costs on other customers.

The new proposal, developed in response to solar policy directives in South Carolina's 2019-enacted Act 62, and North Carolina's 2017-enacted House Bill 589 (HB589), can accomplish those objectives, according to representatives of Duke, Sunrun, Vote Solar, the Southern Environmental Law Center (SELC) and the North Carolina Sustainable Energy Association (NCSEA) who helped shape the settlement.

Fights over NEM

NEM compensates rooftop solar owners for the generation their arrays send to the grid, and is available in 40 U.S. states and Washington, D.C. Compensation is set at the same retail rate customers pay for electricity, unless successor tariffs are in place that adjust that compensation.

NEM was deployed state by state to support early renewables growth. Retail rate compensation was a proxy for the value of the exported generation. Since at least 2013, utilities have complained about NEM to regulators, arguing its reduction in solar-owning customers' bills shifts system costs to the rest of the customer base. Solar advocates argue NEM benefits all utility customers by reducing operational costs.

The result is often-heated conflicts between utilities and solar advocates over a successor tariff that would theoretically represent the true value of distributed solar but prevent an undue shift of costs to non-solar-owning customers. The Duke settlement aims to eliminate some of those debates through rate design and smart technologies.

In many states, compensation debates "have been quite contentious" because utilities "want to reduce or eliminate the cost shift and have proposed compensation at avoided costs or wholesale rates," Proudlove said. Solar advocates are "realistic about coming changes," but want cost-benefit or value-of-solar studies to set a compensation that matches the value of their exported generation.

South Carolina's Act 62 required review of the retail rate NEM provision by regulators in 2021 and North Carolina's HB589 required a review by 2027. With successor tariff debates likely and Duke subsidiaries the dominant electricity providers in both states, it made sense for stakeholders to work toward a plan, NCSEA General Counsel Peter Ledford said.

The proposal, which the settlement partners described as "unprecedented" and "paradigm-changing," has special significance because solar has struggled in the Southeast, regulators have been and continue to be hard on NEM

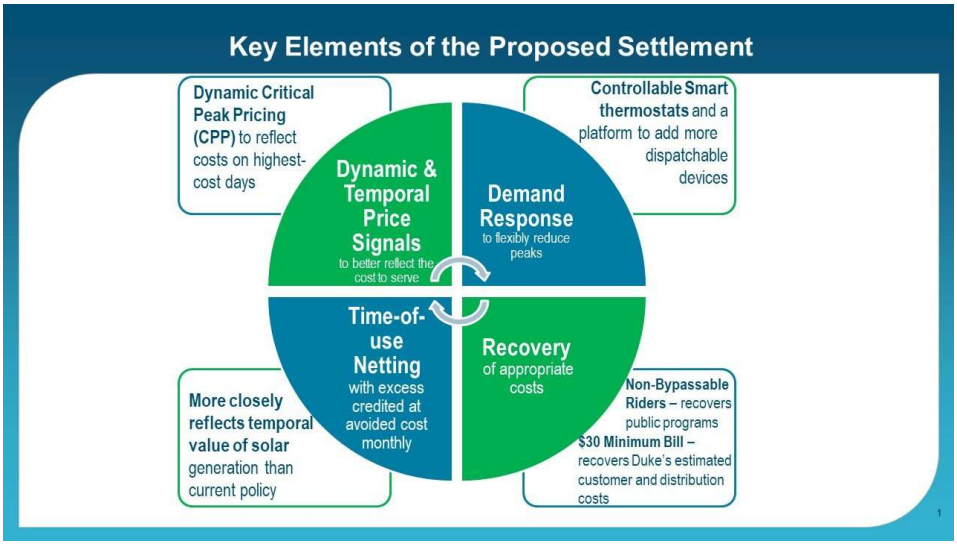
policies, and installed solar capacity has only recently begun to match the region's resource potential.

Southern Company subsidiary Alabama Power's retail rate is $0.1337/kWh, but based on concerns about a cost shift, pays solar owners only a regulator-approved $0.035/kWh for exported electricity, SELC reported in 2019. And, in July, the utility won regulatory approval for one of the region's "highest solar-specific monthly charges," said SELC Senior Attorney and Solar Power Initiative Leader Lauren Bowen.

In Florida, the 2019 regulatory approval of solar leasing, combined with the state's NEM, led to a boom in rooftop solar, Southern Alliance for Clean Energy (SACE) Energy Policy Attorney for Florida George Cavros reported Sept. 11. By the end of 2019, there were "nearly 60,000 customer-owned net-metered systems." But there was also a call for regulatory review of the NEM policy, Cavros reported.

"It is a pattern around the country," Bowen said. "At a certain rooftop solar penetration, the need for a variation on net metering is raised."

The North and South Carolina bills' requirements that retail rate NEM be reviewed make successor tariff debates likely and a new approach practical now, stakeholders said.



Permission granted by Duke-solar settlement group

A sustainable solution

The settlement participants see the new proposal as a sustainable way to end the NEM and successor tariff debates.

"Collaborations on successor tariffs often produce piecemeal, short-term agreements," Vote Solar Senior Regional Director and Regulatory Counsel Thad Culley said. "This proposal is a comprehensive and paradigm-changing solution and should hold up over the long term."

The settlement proposal brings together time-of-use (TOU) rates, critical peak pricing (CPP) and incentives for participation in Duke's demand response programs, Sunrun Director for Public Policy Tyson Grinstead said. "No one piece is the perfect solution, but the package as a whole preserves the critical underpinnings of net metering."

It offers an upfront rebate for adding a smart thermostat that Duke could use to shed or shift customer usage and manage peak demand, he added. Taken as a whole, the benefits would be "as good as with net metering," Grinstead said.

The high-level Act 62 objectives required eliminating the cost shift, ensuring the solar market remain uninterrupted and offered the option of time-varying rates and other strategies, Huber said. "The settlement's combination of policy elements addresses those objectives and incorporates best practices for those options from other states into a scalable long-term framework."

The CPP and mandatory TOU rates send solar-owning customers improved price signals to reduce consumption when power prices are high, Huber said. "Along with monthly netting, solar owners will be able to maximize the value of self-consumption. A minimum bill, grid access fee, and non-bypassable charges assure that the cost of public programs and the grid are covered" without imposing costs on other customers.

Models of the settlement plan suggest a 92% or more reduction of the Duke-calculated cost shift from solar owners to non-solar-owners, Huber added. "The plan would increase solar owners' current average payback for their rooftop systems from 11 years to about 14 years, but with the demand response program incentives, it would likely come back in line with today's payback."

NCSEA has crunched the numbers, Ledford said. "This will not work for every customer in every situation, but we think the payback will make rooftop solar a good deal." Vote Solar's Culley agreed the plan "will offer good cost savings," if solar owners respond to price signals, and also noted it has a grandfathering provision that will protect current solar owners.

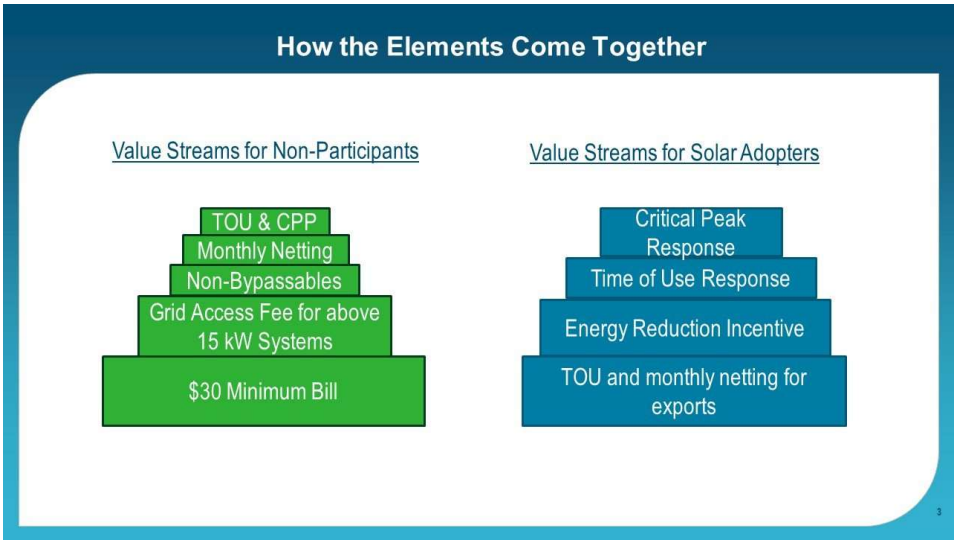
The plan's incentive will initially be available only to customers with smart thermostats, but eventually other flexible DERs will be eligible, Huber said. "If North Carolina and South Carolina regulators approve the proposal, customers' self-consumed solar and dispatchable demand response would be part

of Duke's 'shared savings' energy efficiency program, making rebates eligible for cost recovery," he added.

If that happens, the utility would be allowed to recover the same 10.6% of the net benefits from utility savings that is allowed for any other technology in Duke's energy efficiency program, he said. And that makes it "in shareholders' interest for Duke customers to add rooftop solar."

DER advocates defended the utility's cost recovery. It is an expenditure "that allows customers to invest their own capital to build a more distributed and reliable grid," Sunrun's Grinstead said. "That is a win-win."

Duke shareholders "should be able to earn on efficiency investments because it puts those investments on a level playing field with other capital investments that shareholders earn returns on," NCSEA's Ledford agreed. That is "a policy decision that was made in North Carolina 15 years ago and has played out well."



Permission granted by Duke-solar settlement group

Will regulators approve?

The proposal now faces regulatory review from two commissions. "Duke's Carolinas system shares the costs of energy efficiency programs between the states, and both state commissions have to approve them," Huber said. Settlement partners are optimistic South Carolina regulators will approve because the proposal meets Act 62's objectives, but North Carolina approval is less certain, Huber said.

The energy efficiency provision is a key strength in North Carolina "because Duke has never had satisfactory visibility or control of DER on its system and that is a practical operational difficulty," NCSEA's Ledford said. This proposal resolves that because the smart thermostat provides visibility and some control over customer usage, protects the solar market's financial calculus, and protects and benefits customers not interested in solar, he added.

"It is too soon to say the North Carolina commission will approve it, but much of this has been negotiated between the utility and [solar] industry advocates who work in both states," Ledford said. "Opponents may not see this as a perfect solution, but once they look at the numbers, they will understand why it is a good compromise."

There are also uncertainties in South Carolina, said Grinstead, a former aide to Sen. Lindsey Graham, R-S.C. "Four new commissioners will be appointed to the seven-member commission by the legislature later this year and one of the first things they will take up is this settlement."

But the proposal meets Act 62's objectives, which will make approval more likely, VoteSolar's Culley said, agreeing with Huber. And in North Carolina, "if Duke and NCSEA agree on a settlement, as they did with HB589, it is likely to get approval."

While Huber is cautiously optimistic about approval in the Carolinas, he is also looking ahead. "This can guide the rest of the country on how to look at rooftop solar, and how to move beyond our traditional way of separating rooftop solar from other demand-side resources."

SOLAR (/ARTICLES/CATEGORY/SOLAR)

Duke Energy's SC Net-Metering Replacement Won a Crucial Ally: Rooftop Solar Companies

The utility and installers both believe the plan can keep solar attractive while minimizing the costs imposed on non-solar ratepayers.

JULIAN SPECTOR

SEPTEMBER 16, 2020

South Carolina's Energy Freedom Act formed the basis for a new approach to net-metering for rooftop solar.

Few grid policy battles have been fought as bitterly as those pertaining to replacements for net metering, which determines how much rooftop solar customers get paid for the power they export to the grid.

Utilities across the country have pushed to move away from paying full retail rates, arguing that it shifts costs onto other ratepayers. Solar installers typically respond by characterizing utility proposals, which often propose additional costs for rooftop solar customers, as punitive and unreasonable.

Utility Duke Energy tossed out the conventional playbook when proposing a net-metering successor for its South Carolina territory. It was able to get the rooftop solar industry on board as well.

The agreement, made public Wednesday afternoon, shows that Duke's "Solar Choice Net Metering" concept enjoys the official support of advocacy groups Vote Solar and North Carolina Sustainable Energy Association, leading national installer Sunrun and several other environmental groups. It's up to regulators to approve the plan, but rallying a broad coalition of stakeholders is a good place to start.

The policy seeks to update the existing paradigm to compensate rooftop solar production in a way that is sustainable for all ratepayers.

If approved, the plan would keep the current net-metering framework but transition solar customers to time-varying rates, which are higher during hours of peak demand. Solar customers can also earn an upfront energy-efficiency incentive if they install a controllable smart thermostat alongside their solar system.

"Legacy rate design hasn't been designed for generators on people's roofs," said Lon Huber, Duke's vice president for rate design and strategic solutions. "Without modernizing that, it can lead to suboptimal outcomes for the adopting customer and everyone."

The new plan aligns pricing with the cost of service, creating "a triple win for customer, company and climate," Huber added.

The changes, plus a $30 bill minimum and a grid access fee for systems larger than 15 kilowatts, ensure that solar adopters will not zero out their payments to the utility. But Duke says those measures, plus the time-based rates, eliminate 92 to 96 percent of the calculated cost shift — so paying for solar net metering won't appreciably raise rates for customers who don't have solar.

"This is just a smarter rate design," said Thad Culley, Vote Solar's senior regional director for the Southeast. "It's not about taking away money from solar customers; it's aligning the cost and aligning the price signals."

Beyond solar

Time-of-use rates are not new; solar-heavy California has already enacted them, for instance. But the linkage between net metering and flexible demand is novel, and it has the potential to leverage solar homes for more systemwide value than previous policies have attempted.

Customers can just do solar if they decide to. But adding a discounted, utility-controlled smart thermostat creates more savings opportunities. Duke plans to add more controllable devices later.

Households can program the thermostat to adjust to the peak pricing periods. But it will also respond to a limited number of "critical peak pricing" events on days when grid supply is stretched thin. In practice, this could look like homes preheating or -cooling when their solar system is producing in order to save money in evening hours when the prices go up.

"It is more complex — that's going to take some education," Culley said. "But this is where we want to see the grid go: We want to see more flexibility and customers playing a bigger role in that."

The Solar Choice Net Metering concept reframes home energy consumption as an energy-efficiency measure, a technical shift with big ramifications.

States created energy-efficiency programs to incentivize customers and utilities to save money by reducing consumption of electricity. Solar self-consumption similarly reduces demand for electricity but has not been treated as an energy-efficiency measure. Breaking down the silos separating efficiency and home solar could clarify the benefits of rooftop solar for the utility and the system as a whole.

A good deal all around

Net-metering battles of years past gave the impression that the outcome would either crush the solar value proposition or subsidize it on the bills of all other ratepayers. The South Carolina plan offers a radical alternative to this zero-sum vision: Solar policy can make the utility whole, eliminate a cost-shift from non-solar households and still ensure that solar will be worthwhile for people who want it.

The current retail rate is essentially flat throughout the day, so net metering pays the same for exports at noon as it does in the late afternoon. The new off-peak rate would pay a couple of cents less, but the on-peak rate would pay several cents more; some solar production will fall

in that window. That could result in a slight decrease in solar payback, but not by much, Culley said. Conversely, households that lean into the flexibility could come out ahead compared to the simpler current paradigm.

The proposal avoids fixed charges or demand charges, which the solar industry has fought in other states. Instead, it requires that charges for the month need to hit at least $30, based on the calculated cost for the utility to serve solar households. Most ratepayers will already have a bill that high, so Culley noted that only a very small number of customers are likely to require bill increases to meet that level. Similarly, the fee for systems larger than 15 kilowatts would rarely be imposed, as that's an uncommonly large system size, roughly double the national average rooftop solar size.

These measures are meant to right-size solar systems to the needs of the house, rather than encourage overbuilding to cash in on exports. That right-sizing keeps the program costs in check.

The proposal checks the boxes laid out in South Carolina's 2019 Energy Freedom Act, passed with widespread support, Culley said. That law created objective standards to measure things like the cost of service to solar customers, long-run costs of net metering and the economic benefits of a homegrown solar industry.

"It gave everyone a standard language to ask the right questions," Culley said. "It lets you develop a solution that's the right size cure for whatever the ill is, if there is an ill."

South Carolina launched retail-rate net metering in energy legislation passed in 2014. Utilities starting hitting the program cap (https://www.greentechmedia.com/articles/read/south-carolina-solar-companies-seek-compromise-net-metering-caps) in 2018, prompting a scramble to lift the cap to allow the market to grow. When a legislative effort failed, Duke Energy Carolinas asked regulators to approve a temporary extension of the program. That effort succeeded, creating space for stakeholders to figure out what the long-term future of residential solar in the state should look like.

Duke Energy committed (https://www.greentechmedia.com/articles/read/duke-energy-vows-to-eliminate-carbon-emissions-by-2050) last year to eliminate half of its carbon emissions by 2030 and achieve net-zero emissions by 2050. The company identified winter peaks, driven by electric heating load, as a challenge for decarbonizing the grid (https://www.greentechmedia.com/articles/read/how-duke-energys-southeastern-service-territory-dictates-its-path-to-zero-carbon). Using customer devices to reduce critical peak demand "is definitely going to help" with the winter peak challenge, Huber said.

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